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# **SILVER REEF MINE**

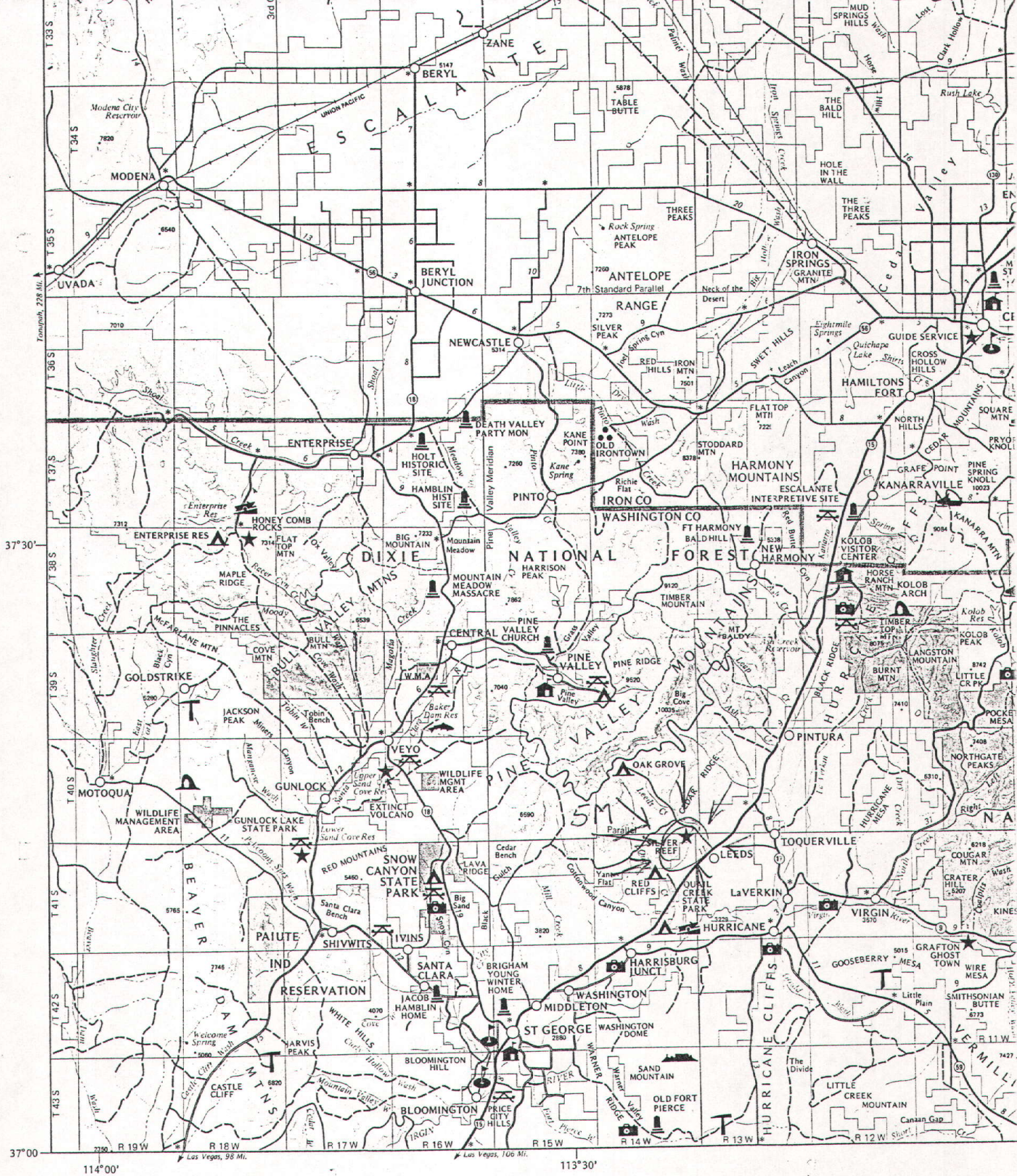
*5 M, INCORPORATED*

Brief  
for

**Division of Oil, Gas and Mining**

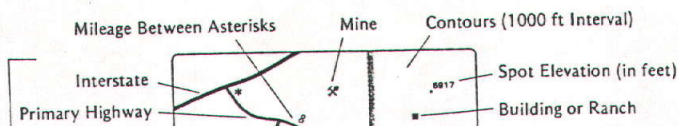
*1991 SPRING JAMBOREE*



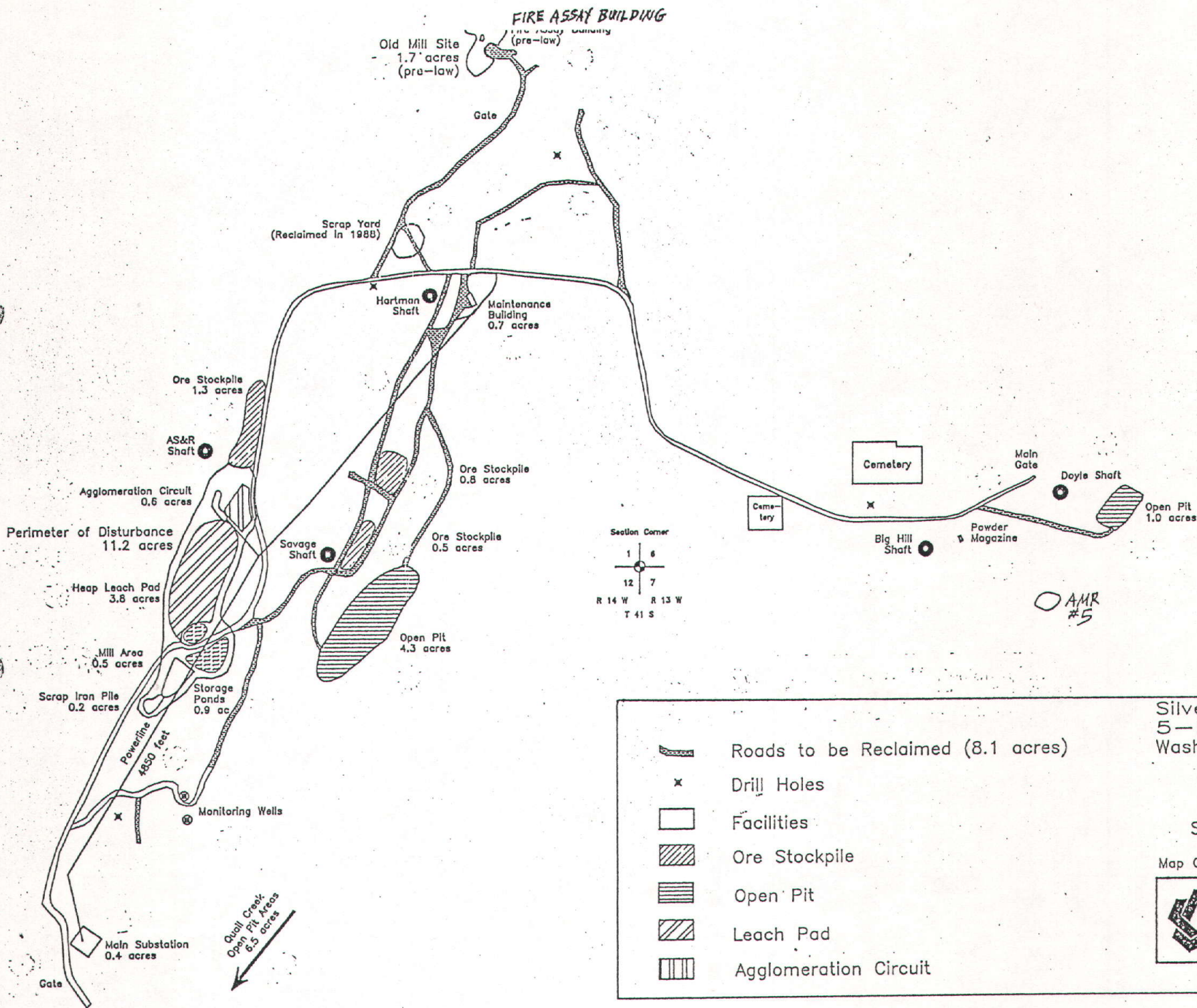


### BASE INFORMATION

### LAND OWNERSHIP







Silver Reef Mine  
5-M Incorporated  
Washington County,

M/053/002

Scale : 1" = 60'

Map Compiled December 13,



State of Utah  
Department of Natural Resources  
Division of Oil, Gas and



## Location and Description

The Leeds Silver Reclamation site is located at the North 1/4 Corner of Section 12, Township 41 South, Range 14 West, Salt Lake Baseline and Meridian in Washington County, Utah. Leeds, Utah (population 260) is approximately one mile southeast of the site along the east side of Interstate 15. The small town of Silver Reef (population approximately 150) is located about one mile north of the site. A few rural residences are located to the east and south of the site within a four mile radius and plans have been made for a housing development about 1/2 mile south of the site. Figure 1 is a Site Location map.

A large heap leach pad covers 3.8 acres near the center of the site. At the south end of the leach pad is a small collection pond and south of this is an overflow pond. These two ponds cover 0.9 acres. The leach pad and both of these ponds are underlain by an asphalt liner. A levee extends partway across the drainage to the south of the overflow pond forming a secondary surface water impoundment to contain the runoff from the site, should the other ponds overflow. North of the leach pad is a 1.3 acre ore stockpile and south of this stockpile, about half the distance to the leach pad, are three 72-gallon electrical transformers. The mill area covers 0.5 acres in the southwest corner of the site.

## Site History

The site is currently owned, and was operated, by 5M, Inc. of Hurricane, Utah. Jerry Glazier is the President and owner of the company. The asphalt leach pad and ponds were constructed around 1978 and the facility was in operation through 1983. A sulfuric acid leach was used in the operation's process of copper and silver. Copper and silver sandstone ores from the Triassic Silver Reef Member of the Chinle Formation were processed via acid heap leach operations. 5M, Inc. had proposed a uranium and vanadium recovery operation in addition to the copper and silver, but the necessary permits from the Nuclear Regulatory Commission were never obtained and the processes never came into operation. 5M has expressed intentions to resume operations at the site, should the price of silver become sufficiently high.

The Utah Division of Oil, Gas and Mining has been regulating activities at the site since operations commenced in 1978. On April 5, 1991, the Board of OGM issued an order requiring 5M, Inc. to cease all operations at the Silver Reef Mine. The order also required the Division to prepare a detailed reclamation plan for the disturbances associated with 5M's mining operation of the site. The Board authorized the use of the forfeited \$55,210 Kerley Industries surety by the Division to perform the required onsite reclamation and/or remediation of any imminent public health and safety concerns.

DOGM has been conducting a hazard assessment of open mine shafts and adits with the \$55,000 forfeited bond from Kerley Industries, a company which once had prospects of a joint venture with 5M, Inc.



A developer with prospective real estate properties south of the site, has alleged that constituents from the site may have migrated to the groundwater and contaminated his well, located less than 1/4 mile downgradient of the site. He intends to use this well as a public supply for culinary water for a planned 90-family subdivision to be located immediately south of the site. Water from this well is currently used for domestic supply for approximately 11 residences.

The Analytical Report discussing the results and conclusions of testing performed by the Utah Department of Health, Bureau of Environmental Response and Remediation, is in the process of being completed and reviewed. This report will provide information regarding the toxicity of materials located on the site. This information will be used to determine the handling procedures to be used in reclaiming the impacted areas. Waiting for this report will prevent unnecessary duplication of sampling, analysis, reporting and costs to the Division.

A resolution to the reclamation problems encountered at this site will involve the Minerals Program, Abandoned Mines, and the Division of Environmental Health.

#### Previous and Potential Problems

Water samples taken by Utah Department of Health and 5M representatives on November 21, 1986 from the collection pond and overflow pond and analyzed for metals, show detectable concentrations for 10 constituents. These constituents include: Barium 2.0 mg/L; Cadmium, 1.06 mg/L; Iron 180 mg/L; Manganese, 126 mg/L; Chloride, 975 mg/L; Sulfate, 220,000 mg/L; Copper, 222 mg/L; Mercury, 0.374 mg/L; Silver, 8.8 mg/L; and Zinc, 109 mg/L.

A Preliminary Assessment conducted by the UBSHW indicated a potential for contamination of soils, ground water and surface water and assigned the site a medium priority for further site investigation activities.

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